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| AP | IB |  |
| 1.A.1 | 5.4, D.2.1&2, D.4.1-3 |  |
| 1.A.2 | 5.4 |  |
| 1.A.3 | D.4 | AP requires knowledge of genetic drift |
| 1.A.4 | 5.4, D.3, D.5 |  |
| 1.B.1 | Topics 2, 3, and 4 |  |
| 1.B.2 | D.5 |  |
| 1.C.1 | D.2.7 | AP requires knowledge of extinction |
| 1.C.2 | D.2 |  |
| 1.C.3 | 5.4.8 |  |
| 1.D.1 | D.1 |  |
| 1.D.2 | D.1 | AP requires knowledge of dates of Earth's formation and beginning of life |
| 2.A.1 | 5.3, 7.6 | AP requires knowledge of terms such as "free energy", "entropy", "thermodynamics", "exergonic", etc. that are not discussed per se in IB. AP requires knowledge of relationship between metabolic rate per unit body mass. |
| 2.A.2 | 3.7, 3.8, 8.1, 8.2, D.1.7 | AP defines autrophy, etc. in terms of energy whereas IB defines them in terms of organic molecules. AP requires knowledge of chemosynthesis, types of electron acceptors. AP does not require steps or enzymes involved in fermentation or Krebs cycle. |
| 2.A.3 | 3.1, 2.1.6, 6.1.7, 6.5.8, 6.5.9 | AP does not require list of most common elements or functions for less common elements. It does require functions for more common elements (which IB doesn't, specifically, although in reality I think it does.) |
| 2.B.1 | 2.3.5, 2.3.6, 2.4.1, 2.4.2 | AP requires knowledge of aquaporins |
| 2.B.2 | 2.4 |  |
| 2.B.3 | 2.2.1, 2.2.2, 2.3.1, 2.3.2, 2.3.4, 2.4.7 | AP requires explanation of *why* membrane-bound organelles are helpful. (See 2.B.3a and b) |
| 2.C.1 | 6.5.9-12, 11.4.15, 9.2.7-10 | AP explicitly pairs positive and negative feedback conceptually, which makes perfect sense. 11.4 could certainly be taught with 6.5. 9.2 would not be necessary but could be included. |
| 2.C.2 | E.6.6. and E.6.7 |  |
| 2.D.1 | 3.6.3, 3.8.8, 9.2.9, 5.1.1 |  |
| 2.D.2 | 6.1 and 6.5 | It seems that comparative anatomy (invertebrate or nonhuman vertebrate) is not required in the new AP syllabus but I am not entirely sure. AP does seem to want discussion of anatomy and physiology to provide support for common ancestry, so maybe it should. |
| 2.D.3 | 5.2.3, 5.2.6, 6.3 and 11.1 | AP frames both illnesses and ecological disasters as "disruptions to homeostasis" which I think is helpful |
| 2.D.4 | 6.3 and 11.1 | AP seems to require some knowledge of plant and invertebrate "non-specific immune response" |
| 2.E.1 | 2.1.8, 2.1.9, 4.1.3, 4.1.4, 9.3.4 | AP requires knowledge of transcription factors, homeotic genes, embryonic induction, genetic transplantation experiments, microRNA, apoptosis |
| 2.E.2 | 9.1.7, 9.3.6, E.6.6, E.6.7 | AP requires knowledge of timing and coordination in bacteria and fungi |
| 2.E.3 | All of the above plus E.3 |  |
| 3.A.1 | 3.2, 3.3, 3.4, 3.5, 4.1.1, 4.4, 7.1, 7.2, 7.3, 7.4, 4.8.8 | AP requires plasmids, which are only mentioned in IB in the context of gene transfer. AP requires Watson and Crick, Avery, and Hershey and Chase. AP requires retroviruses. IB requires an extensive list of genetic engineering techniques, whereas AP seems to requite only a few illustrative examples. |
| 3.A.2 | 2.5, 4.2, 10.1, 10.2.3, 11.4.9 | AP requires knowledge of cyclin-dependent kinases. AP requires knowledge of definition of fertilization but does not seem to require details in IB's 11.4.9. |
| 3.A.3 | Topic 4, Topic 10 | AP requires law of segregation. |
| 3.A.4 | Topic 4, Topic 10 | AP requires non-nuclear inheritance |
| 3.B.1 | No analog | AP requires regulatory sequences, inducers, repressors, transcription factors |
| 3.B.2 | 9.3.5 | AP requires "signal transmission within and between cells mediates cell function"--I bet there's many phys topics that would fit in there. Maybe neuro? |
| 3.C.1 | 4.1.2, 4.1.3, 4.2.4, D.2.5, 5.4.7, 5.4.8 |  |
| 3.C.2 | 4.8.8, 10.1.3 | AP requires knowledge of horizontal gene transfer. This could be included or related to artificial gene transfer in 4.8.8. |
| 3.C.3 | No analog | AP requires details of viral replication and viral infection |
| 3.D.1 | No analog | AP requires knowledge of signal transduction pathways. Could blood clotting be an example? |
| 3.D.2 | 6.5, 11.1.4 | AP explains nervous system, endocrine system, immune system in terms of "cell-to-cell contact" |
| 3.D.3 | No analog | AP requires knowledge of second messengers, signalling cascades, protein modification and phosphorlyation as part of signal transduction |
| 3.D.4 | E.4 |  |
| 3.E.1 | Option E |  |
| 3.E.2 | 6.5, E.1, E.4, E.5 |  |
| 4.A.1 | Topic 3, Topic 7 | AP requires details about structures of lipids. |
| 4.A.2 | 2.3.2, 2.3.5, 2.3.7, 2.4.7, 3.8.3, 3.8.4, 7.4.2, 7.4.6, 8.1.3, 8.1.6, 8.2.1, 8.2.6 |  |
| 4.A.3 | 2.1.8 | AP puts emphasis on environmental effects on gene expression |
| 4.A.4 | 6.1.5 | AP requires information about interaction and coordination between systems |
| 4.A.5 | 5.3 |  |
| 4.A.6 | 5.1, 5.2 | AP includes density-dependent and density-independent factors |
| 4.B.1 | 3.6, 4.6.1, 7.6 | AP requires cofactors and coenzymes |
| 4.B.2 | Everything | This is very broad--what doesn't fit into this category? |
| 4.B.3 | No analog | AP requires symbioses, factors affecting species abundance |
| 4.B.4 | 5.2 | AP seems to require a discussion of ecosystem change that goes beyond climate change |
| 4.C.1 | 4.3.4, D.2.11 | AP's focus on gene duplication and its effects seems a little different than IB's focus |
| 4.C.2 | No analog | AP puts emphasis on environmental effects on gene expression |
| 4.C.3 | 5.4.7 | AP emphasizes value of genetic diversity in avoiding extinction |
| 4.C.4 | No analog | AP emphasizes biodiversity |
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